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- Spectral evidence for the structure of three flavanotropolones related to theaflavin, an orange-red pigment of black tea. Y. Takino, A. Ferretti, V. Flanagan, M. A. Gianturco, and M. Vogel, 1949.
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- Spectres infrarouge et Raman de KSCN à l'état cristallin. R. Savoie et M. Pézolet, 1677.
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- Fluoranthene studies. II. Bromination of 2-nitro- and 2-acetamido-fluoranthene. E. H. Charlesworth and A. J. Dolenko, 96.
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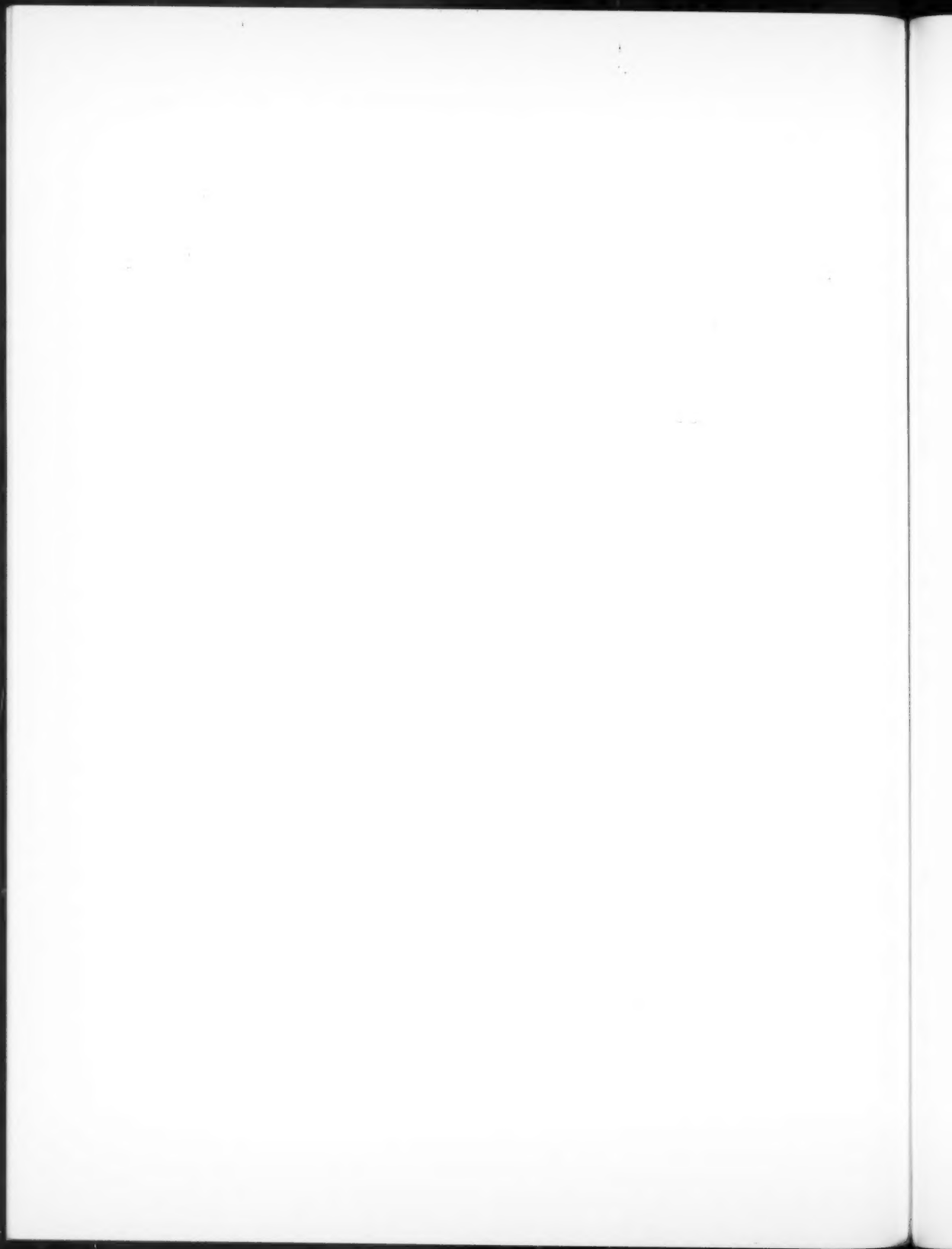
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- Dorfman, L. M.**  
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- Douglas, J. L.**  
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- Dunn, G. E.**  
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- Dutrizac, J. E.**  
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- Edward, J. T.**  
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- Edwards, O. E.**  
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- Fan, H. S.**  
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- Faniran, J. A.**  
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- Farhat, K.**  
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- Field, T. D.**  
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- Filipescu, N.**  
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- Filler, R.**  
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- Findlay, F. D.**  
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- Findlay, J. A.**  
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- Finley, K. T.**  
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- Flanagan, V.**  
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- Fleming, J. E.**  
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- Flengas, S. N.**  
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- Fletcher, J. W.**  
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- Fletcher, T. L.**  
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- Gardner, C. L.**  
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- Gash, V. W.**  
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- Gates, J. W., Jr.**  
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- Gauthier, J.**  
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- Gauthier, M.**  
Électrochimie en milieu chlorhydrique concentré: réduction du germanium(IV). R. L. Benoit, M. Gauthier et V. Plichon, 1031.
- Gedye, R. N.**  
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- George, M. V.**  
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- Gertner, D.**  
Synthesis of mono- and di-functional benzyl and phenethyl derivatives containing silicon. A. Rotman, D. Gertner, and A. Zilkha, 1957.  
Synthesis of some silicon-containing analogues of phenylalanine. A. Rotman, D. Gertner, and A. Zilkha, 2469.  
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- Gianturco, M. A.**  
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- Giguère, P. A.**  
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- Good, M. L.**  
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Configuration of the pyruvic acid ketals, 4,6-*O*-linked to D-glucose units, in *Xanthomonas campestris* polysaccharide. P. A. J. Gorin, T. Ishikawa, J. F. T. Spencer, and J. H. Sloneker, 2005.
- Goring, D. A. I.**  
Shape of the cellodextrins in aqueous solution at 25 °C. M. Ihnat and D. A. I. Goring, 2353.  
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- Gosavi, R. K.**  
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- Goubeau, J.**  
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- Gupta, S. K. (Tempe, Arizona)**  
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- Hall, N. D.**  
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- Halonen, M.**  
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- Hamanaka, E.**  
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- Hampson, N. A.**  
Electrochemical reactions at  $\text{PbO}_2$  electrodes. Part I. The passivation of  $\beta$ - $\text{PbO}_2$  in perchloric acid. N. A. Hampson, P. C. Jones, and R. F. Phillips, 2039.  
Electrochemical reactions at  $\text{PbO}_2$  electrodes. Part II. The exchange reaction at  $\beta$ - $\text{PbO}_2$  electrodes. N. A. Hampson, P. C. Jones, and R. F. Phillips, 2045.
- Hanbury, P.**  
Non-equivalence of vicinal proton-fluorine coupling constants in a  $\text{CF}_2\text{—CH}_2$  group. R. R. Fraser and P. Hanbury, 1485.  
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- Harvey, K. B.**  
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- Harvey, R. G.**  
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- Hasan, S. K.**  
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**Langager, B. A.**

- 5-Nitro-6-substituted-2-norbornenes: determination of Diels-Alder isomer ratios from nuclear magnetic resonance spectra. W. E. Noland, B. A. Langager, J. W. Manthey, A. G. Zacchei, D. L. Petrak, and G. L. Eian, 2969.

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**Lantos, I.**

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**Latrémoille, G. A.**

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- Lim, C. C.**  
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- Lim, M. M.**  
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Erratum: Acetylenic esters. II. Further addition reactions with sulfur- and nitrogen-containing compounds. J. W. Lown and J. C. N. Ma, 2009.
- Luke, M. O.**  
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- Ma, J. C. N.**  
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Erratum: Addition reactions of acetylenic esters with substituted thioureas. J. W. Lown and J. C. N. Ma, 2009.  
Erratum: Acetylenic esters. II. Further addition reactions with sulfur- and nitrogen-containing compounds. J. W. Lown and J. C. N. Ma, 2009.
- McAvoy, N.**  
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- Maitlis, P. M.**  
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Cyclobutadiene-metal complexes. XI. Tetramethylcyclobutadienecobalt(I) complexes. R. Bruce and P. M. Maitlis, 2017.  
Erratum: Cyclobutadiene-metal complexes. Part VIII. Synthesis of tetraphenylcyclobutadiene nickel halides by ligand-exchange reactions. D. F. Pollock and P. M. Maitlis, 2121.
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- Manville, J. F.**  
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- March, R. E.**  
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- Mariella, R. P.**  
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- Marinier, B.**  
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- Marshall, D. R.**  
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- Megson, F. H.**  
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- Messervy, D. T.**  
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- Mettee, H. D.**  
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**Money, T.**

Biogenetic-type synthesis of benzophenones and biphenyls. J. L. Douglas and T. Money, 1990.

**Monković, I.**

Biosynthesis of dictamnine. The origin of the quinoline nucleus. I. Monković, I. D. Spenser, and A. O. Plunkett, 1935.

**Moran, M.**

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The exocellular glycan produced by *Myxobacterium* 402. I. M. Morrison, R. Young, M. B. Perry, and G. A. Adams, 1987.

**Moseley, K.**

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- Neville, G. A.**  
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- Nobles, W. L.**  
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- Noland, W. E.**  
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- Nozaki, H.**  
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- Oberster, A. E.**  
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- and sulfur acetals and epimerization of monothioacetals. N. H. Kurihara and E. P. Painter, 1467.
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- Perlin, A. S.**  
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- Peters, P. A.**  
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- Pieroni, J. J.**  
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- Plunkett, A. O.**  
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- Pollak, P.**  
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- Quick, L. M.**  
Decomposition of organic halides photosensitized by hexafluoroacetone. L. M. Quick and E. Whittle, 1902.
- Quinn, H. W.**  
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- Rao, P. M.**  
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- Spenser, I. D.**  
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- Swindlehurst, R. N.**  
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- Symons, E. A.**  
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- Tait, M. J.**  
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- Takahashi, F.**  
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- Takino, Y.**  
Spectral evidence for the structure of three flavanotropolones related to theaflavin, an orange-red pigment of black tea. Y. Takino, A. Ferretti, V. Flanagan, M. A. Gianturco, and M. Vogel, 1949.
- Tallent, W. H.**  
Rapeseed meal autolysis. Formation of diastereomeric (2*R*)-1-cyano-2-hydroxy-3,4-epithiobutanes from progoitrin. M. E. Daxenbichler, C. H. VanEtten, W. H. Tallent, and I. A. Wolff, 1971.



- Talman, J. D.**  
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- Tanabe, M.**  
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- Theophanides, T.**  
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- Thynne, J. C. J.**  
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- Tole, J. C.**  
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- Tomizawa, H.**  
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- Tori, K.**  
Substituent effects on the chemical shifts of the bridge protons of benzonorbornenes. N. Inamoto, S. Masuda, K. Tori, K. Aono, and H. Tanida, 1185.
- Tremaine, P. H.**  
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- Tremba, E. L.**  
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- Tremblay, G.**  
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- Truitt, P.**  
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- Tsai, J. H.**  
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- Unrau, A. M.**  
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- Vadlamudy, S. V.**  
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- Valverde-Lopez, S.**  
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- Varma, R. S.**  
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- Veach, C. D.**  
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- Venkateswaran, A.**  
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- Venugopalan, M.**  
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- Vining, L. C.**  
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- Vis, J. H.**  
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- Vlastaras, A. S.**  
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- Vogt, P. F.**  
An improved synthesis of  $\beta$ -hydroxysulfones via  $\alpha$ -sulfonylcarbanions in liquid ammonia. The direct metalation of dialkyl and aryl alkyl sulfones. D. F. Tavares and P. F. Vogt, 1519.
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- Walker, D. C.**  
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- Walker, K. E.**  
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- Walton, A. G.**  
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- Walton, D. J.**  
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- Walton, R. J.**  
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- Wan, K.-M.**  
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- Wang, S. M.**  
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- Warkentin, J.**  
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- Warner, C. M.**  
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- Wasson, F. I.**  
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- Watanabe, S.**  
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- Waterfield, R. G.**  
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- Watts, H.**  
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- Wells, E. J.**  
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- White, J. F.**  
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- Whitehead, M. A.**  
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- Whitlow, S. H.**  
Single and double electronic transitions in molecular oxygen. S. H. Whitlow and F. D. Findlay, 2087.
- Whittle, E.**  
Decomposition of organic halides photosensitized by hexafluoroacetone. L. M. Quick and E. Whittle, 1902.
- Whytock, D. A.**  
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- Wicha, J.**  
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- Wiles, D. R.**  
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- Wilgus, H. S. III**  
Thiele acetylation of substituted benzoquinones. H. S. Wilgus III and J. W. Gates, Jr., 1975.
- Wilkening, V. G.**  
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- Wilkins, C. K., Jr.**  
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- Williams, D. T.**  
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- Wolfe, S.**  
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- Wolff, I. A.**  
Rapeseed meal autolysis. Formation of diastereomeric (2*R*)-1-cyano-2-hydroxy-3,4-epithiobutanes from progoitrin. M. E. Daxenbichler, C. H. VanEtten, W. H. Tallent, and I. A. Wolff, 1971.
- Wong, E. L.**  
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- Woo, E. P.**  
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Isomer ratios for the  $^{88}\text{Sr}(p, xn)$  and  $^{88}\text{Sr}(p, p3n)$  reactions. D. R. Sachdev and L. Yaffe, 2711.

- Yanagihara, T.**  
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- Yang, I. C.**  
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- Yao, Y.-F. Y.**  
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- Yates, K.**  
Kinetics and mechanism of bromination of styrenes. K. Yates and W. V. Wright, 167.  
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- Yates, P.**  
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- Yealland, R. M.**  
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- Young, L.**  
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- Young, R.**  
The exocellular glycan produced by *Mycobacterium* 402. I. M. Morrison, R. Young, M. B. Perry, and G. A. Adams, 1987.
- Youngs, C. G.**  
Fe(II)-catalyzed decomposition of sinigrin and related thioglycosides. C. G. Youngs and A. S. Perlin, 1801.
- Yu, R. J.**  
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- Zacchei, A. G.**  
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- Zavitsas, A. A.**  
Correlation of isotope effects in substitution reactions with nucleophilicities. Secondary  $\alpha$ -deuterium isotope effect in the iodide-131 exchange of methyl- $d_3$  iodide. S. Seltzer and A. A. Zavitsas, 2023.
- Zilkha, A.**  
Synthesis of mono- and di-functional benzyl and phenethyl derivatives containing silicon. A. Rotman, D. Gertner, and A. Zilkha, 1957.  
Synthesis of some silicon-containing analogues of phenylalanine. A. Rotman, D. Gertner, and A. Zilkha, 2469.  
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- Zwierzak, A.**  
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